STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

COMMONWEALTH EDISON COMPANY	)	
	)	
Application of COMMONWEALTH EDISON	)	
COMPANY, for a Certificate of Public	)	
Convenience and Necessity, pursuant to	)	**No. 01-0276**
Section 8-406 of the Illinois Public Utilities	)	
Act, and for an Order, under Section 8-503	)	
of the Illinois Public Utilities Act, authorizing	)	
and directing ComEd to operate and maintain	)	
a substation in Cook County, Illinois.	)	

Rebuttal Testimony of

Paul Rosenberg

Electrical Consultant

Intervenors' Ex. 4

Q. What is your name and business address?

A. Paul Rosenberg. P.O. Box 81058 Chicago, Illinois.

Q. How are you employed?

A. I am self-employed as an electrical consultant and author.

Q. What experience do you have in the electrical industry?

A. I have been employed as an electrician, foreman, superintendent, project manager, purchasing agent, estimator, contractor and designer.

Q. Over what period of time have you been employed in the electrical industry?

A. 22 years.

Q. Do you hold any industry certifications?

A. Yes.

Q. Would you identify them please?

A. Master (Contractor) certifications from many municipalities, including, Chicago, Illinois, Buffalo Grove, Illinois, Gainesville, Florida, and a number of other cities.

Q. Have you taught any courses in the electrical construction field?

A. I developed and taught six engineering courses for the College of Engineering at Iowa State University. I have also taught a number of community college courses in Electronics and electrical apprenticeship programs.

Q. Have you authored any industry publications in the electrical

industry?

A. Yes. I wrote several training programs for the National Electrical Contractors Association. I am currently a contributing editor for Electrical Construction & Maintenance and CEE. From 1991 to 1998 I served as the special features editor of Electrical Contractors Magazine. I have also served as a contributing editor to The Electrical Distributor.

Q. Do you belong to any electrical industry associations?

A. I am a member of the board of the Fiber Optics Association and I am a past president of that organization.

Q. Have you published any textbooks related to the electrical industry?

A. I have published over thirty textbooks and manuals.

Q. By whom were these textbooks or manuals published?

A. A number of different publishers, including Prentice-Hall, Macmillan, Fairmont Press, Delmar Publishing and others.

Q. What are the names of some of these publications?

A. "Construction Electrical Contracting", "High Tech Electrical Installation Techniques", "Advanced Estimating, National Electrical Contractors Association", "Electrical Estimating: Work for a Profit", "Guide to the National Electrical Code", "Successful Electrical Contracting", "Questions & Answers for Electrical Examinations", "Installation Requirements of the National Electrical Code" and

others.

Q. Have you ever lectured at electrical industry seminars?

A. Yes. Most recently I lectured at Electric2001, Electric West, and the BICSI show.

Q. Are you familiar with the property at 9243 Laramie in Skokie, Illinois?

A. Yes.

Q. How?

A. I was retained by the owners of the property to estimate the cost to relocate four capacitor banks located on that property from that property to the adjacent property.

Q. Have you visited that site?

A. Yes, last month.

Q. Did you observe any electrical equipment located on that property?

A. Yes, there are four capacitor banks.

Q. Would you please describe briefly what would need to be done in order to move those capacitor banks to the adjacent property?

A. The capacitor banks are built on I-beam structures and anchored into poured concrete foundations. They would need to be removed and reinstalled several yards away on the adjacent property.

Q. Have you had the opportunity to review Mr. Frentzas' pre-filed direct testimony in this matter?

A. Yes, I did.

Q. Does Mr. Frentzas project the cost of relocating the capacitor banks?

A. Yes, he does.

Q. Does Mr. Frentzas' testimony provide any explanation of the basis for that projected cost?

A. None whatsoever.

Q. Have you had the opportunity to review Mr. Frentzas' rebuttal testimony filed in this matter?

A. Yes, I have.

Q. Does that testimony purport to explain the basis for Com Ed's projected cost?

A. Yes, Mr. Frentzas states that he made a detailed list of the items of work that Com Ed would need to perform in order to accomplish the relocation and that he assigned costs to each of those items.

Q. Have you now had an opportunity to review Mr. Frentzas' workpapers and calculations with respect to his projection?

A. Yes, I have.

Q. Based upon your training and experience in the electrical industry, do you have an opinion as to the reasonableness and accuracy of Mr. Frentzas' projections and calculations?

A. I do.

Q. What is your opinion?

A. Mr. Frentzas' projected cost to relocate the capacitor banks is

substantially in excess of what the actual cost would be.

Q. How did you arrive at this conclusion?

A. There are two primary elements to the cost of this project, electrical work related to the relocation of the capacitor banks and earthwork related to the relocation of the anchoring structures. I first addressed the above-grade costs. I started with Com Ed's transmission engineer, Frank Frentzas', calculations as contained in Com Ed's Response to Data Request. I reviewed them for reasonableness and accuracy. I determined that while the labor rates which Mr. Frentzas assumed are high, between $66.90 and $70.40 per hour, they are arguably justified by the specialized nature of this work. However, he has employed an across the board multiplier of 225 percent of the actual man-hours required, with no apparent justification for this factor. This multiplier increases the projected man-hours required by 225 percent. For example, Mr. Frentzas' calculations include 310 feet of grounding. He assumes .03 hours per foot for removal and .07 hours per foot for installation. These are quite ample rates, which equate to one man laying approximately fourteen feet of wire per hour. However, when the 225 percent multiplier is applied, it results in an assumption of only slightly more than six feet of wire per hour, which is an unreasonable assumption. Similarly, Mr. Frentzas

assumes that each of the 25 welds called for by the project will require one hour of labor. This is within the National Electrical Contractors Association guidelines. However, when Mr. Frentzas' 225 percent multiplier is applied, it results in the unreasonable assumption that each weld will take 2.25 hours.

When the 225 percent multiplier is taken out of the equation, the necessary man-hours for the above grade phase of the project would be 532.7. This equates to a four-man crew working on the project for a little over three weeks, which is appropriate for this project.

In addition, there are derivative expenses that are directly proportional to labor costs for engineering and for transmission and distribution. Even assuming that Mr. Frentzas' assumptions as to the proper percentage of labor costs for these derivative expenses are correct, the 225 percent multiplier greatly inflates these costs.

Next, I analyzed the earthwork or below grade costs. I reviewed these for reasonableness and accuracy. I determined that there were a large number of excessive assumptions. For example, Com Ed assumes a cost of $32,000 for equipment foundations. There is no breakdown for this expense. However, this amounts to $8,000 for each of four concrete foundations which basically consist of a yard or two of concrete, twenty to thirty feet of rebar and

approximately eight anchor bolts. This is an unreasonably high estimate.

In addition, Com Ed assumes a cost of $25,730 for excavation and backfill. Again, there is no breakdown for this expense. However, even assuming a very high rate of $200 per hour for a small earth moving machine, this would require a man running such a machine for approximately three weeks just to remove four sets of old small foundations and fill the holes. This is an unreasonable assumption.

In addition, Com Ed's estimate assumes $11,630 for finish yard stone. This is nothing more than spreading a layer of cheap stone over an area equal to approximately 2000 square feet where the foundations would be removed. This is quite an unreasonable estimate. These three aspects of the project, equipment foundations, excavation and backfill and finish stone should cost no more than $30,000, rather than the $69,346 projected by Com Ed.

Com Ed also assumes costs of $2,899 for spreading topsoil and grass seed and $7,863 for removing excavated material, in addition to the excavation and backfill costs we just discussed. These are items which the owners may choose to do or not to do after removal of the equipment and it is inappropriate to include a charge for $10,762 for these items as a cost of relocation.

Com Ed also has added three other questionable elements to its below grade estimate. First, Com Ed has added ten percent for

"contingencies". Not only is there limited basis for this charge, but Com Ed also charges approximately an additional 40 percent of this figure for overhead, profit, engineering and contract services. Thus, the $9,000 "contingency" figure becomes $13,000. Second, Com Ed assumes 20 percent for contractor's overhead and profit, which is not necessarily unreasonable. However, that percentage is being applied to all of the extra charges which I have previously discussed, thereby improperly inflating this figure. Com Ed also adds ten percent for engineering and an additional ten-percent for "contract services". As with the overhead and profit figures, these percentages are being applied to all of the excessive charges which I previously mentioned, thereby improperly inflating these figures, as well. Finally, Com Ed's last line item for the below grade work is ten percent for "contract services". This is an additional charge for Com Ed's engineers to oversee the project. However, Com Ed has already charged ten percent for "engineering".

Q. Based upon your training and experience in the electrical industry, your review of the site and your review of Mr. Frentzas' calculations, do you have an opinion as to the actual cost to remove and reinstall the capacitor banks?

A. I do.

Q. In your opinion, what would that cost be?

A. Approximately $111,000.

183. Q. How did you determine that cost?

184. A. I started with Com Ed's stated actual material and labor
185. requirements, eliminated the 225 percent multiplier and adjusted
186. for the proportional derivative expenses. This results in a cost for
187. the above grade phase of the project of approximately $55,425.
188. Next, I took Com Ed's below grade estimate and adjusted it for the
189. unnecessary charges I mentioned and the derivative costs. That
190. results in a cost for the below grade phase of the project of
191. approximately $55,300, including factors of 20 percent for
192. contractor's overhead and profit and ten percent for engineering.
193. The sum of these two amounts, $55,425, and $55,300, or
194. $110,725, would be the approximate total cost to Com Ed to
195. relocate the four capacitor banks.

196. Q. Does this conclude your testimony?

197. A. Yes, it does.